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Report on Forests of Khurdah
in orissa 1881

BENGAL SECRETARIAT

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46. Perhaps the most destructive enemies in the way of grazing are the herds of goats which, especially in zillahs Kohori and Banpur, have rendered parts of the country almost bare, with the exception of a few rounded thorny masses of twigs. These goats are the property of goat-herds from the Ganjam district of Madras, who have settled themselves in Khoordah and have done a great amount of damage by travelling from mouzah to mouzah and eating off the jungles. When the scrub available in one mouzah is exhausted they proceed to another, at the same time abandoning any cultivation they may have had. It does not appear to me that any harm would be done by the exclusion, at any rate for a considerable period, of these herds of goats, which are really more damaging than even the buffaloes of the estate. Next to goats these latter are the most destructive, for, besides what they devour, they do considerable damage by trampling or knocking down saplings. The question of the closing of areas against grazing and the means to be taken to exclude foreign cattle will be subsequently treated of.

47. *Forest fires.*—There is little or no grass jungle in the Khoordah forests, the material likely to burn being chiefly the dry fallen leaves and dry brushwood. A considerable amount of damage is, however, yearly done by jungle fires, which it appears are usually lit by buffalo graziers. I think that if it is clearly given out that such lighting of fires must stop, and that if fires occur the graziers will be liable to loss of permit for grazing, besides being punishable under the Act, that jungle fires will almost, if not entirely, cease.

48. Should it appear that after a few years' experience these measures are insufficient, more stringent regulations can be made.

The damage done by jungle fires is not so apparent in Khoordah as it is in the forests of Northern Bengal; but the sál forests suffer considerably, and it is these that it is most important to protect.

49. *Forest rights.*—In their letter No. 827A, dated 28th December 1880, the Board of Revenue, quoting the report of the Settlement Officer of Khoordah, said:—

"3. *Forests.*—In paragraphs 129 to 131, Part III, page 63 of his Rate Report, the Settlement Officer wrote as follows:—

"The exclusive right of Government to all forests and forest produce or unsettled lands in Khoordah should be distinctly maintained in the orders issued regarding the principles of the present settlement. So far as can be ascertained, there are no indefeasible private rights in Khoordah to any forest produce on waste and unsettled lands. Such privileges as the ryots may have hitherto enjoyed were allowed to them as matters of good policy or favour.

"The Government, as owner of the estate, has now full right to make such rules and pass such orders regarding the conservation of forests as may seem most likely to conduce to the improvement of the estate and the future welfare of the people, and the Government right in this respect should be clearly and definitely affirmed.

Paragraph 59, clause 5 of Government resolution.

And the Government observed: "So all rights in forests and forest produce should be reserved."

And in letter No. 517A, dated 24th July 1880, the Board also said:—

"2. As far as can be ascertained from the records of the last survey and settlement, no person save Government has any right over the forest lands or waste lands in the estate, and no such private rights appear to have existed before the estate was confiscated by Government."

While in letter No. 206-104LR, dated 24th January 1881, the Lieutenant-Governor ordered—

"3. The Lieutenant-Governor is not disposed unnecessarily to sacrifice any valuable and tangible right which Government may now, by the custom of the estate, possess as proprietor. The local officers should therefore be instructed to consider the matter from all points of view. It is not, on the one hand, desirable to throw obstacles in the way of the extension of cultivation, or needlessly to preserve under jungle tracts suitable for cultivation. But if Government has a right to the timber on such lands (a question of fact which the local officers must examine carefully), some arrangement should be made for enabling it to derive a profit from its sale, as the lands come to be cleared. On the other hand, it is most important to preserve a sufficient stock of timber trees both for the present and the future wants of the country, and especially to prevent any radical and mischievous effects on its climate, such as frequently result from the reckless cutting down of forests. Care must be

taken to guard against this, and every right that Government has must be asserted in order to provide for this requirement."

So that it would seem that it is the opinion of the Settlement Officer, the Collector and Commissioner, and the Board of Revenue, that no right, in the meaning of the Forest Act, existed over the forests of Khoordah. In the extract of the orders of the Lieutenant-Governor last quoted, no general opinion is given that *rights* do not exist; but it is said that the Lieutenant-Governor is not disposed unnecessarily to sacrifice the rights of Government. As far as my opinion goes, I do not think that any "right," in the meaning of the Forest Act, really exists.

50. But it must be remembered that the ryots enjoy considerable *privileges* which, as pointed out by the Settlement Officer, are allowed to them as matter of good policy or favour. Among such privileges are those of free grazing, of cheap firewood and bamboos, of free brushwood and thorns for fencing, and permission to make *toila* or jhum cultivation. There are also certain minor privileges, such as those given to washermen, potters and blacksmiths, to carry away free such forest produce as they require for the purposes of their craft. And it is most important that such privileges, at present given merely for good policy or as a favour, should not be allowed to develop into rights. The local authorities in submitting draft rules have already somewhat considered this question, making it necessary that most kinds of produce be paid for, if only at a nominal rate. And this proposal has, I understand, been approved by the people themselves. And if it is considered necessary and useful still to continue the old privileges, either as before or modified as recently proposed, it is extremely important that every precaution be taken to prevent rights accruing. And this may generally be done by requiring all such acts to be done under previous permission.

51. *Jhum or Toila Cultivation.*—At present "toila" cultivation, but little restricted, is permitted throughout the Khoordah forests. Persons wishing to cut "toilas" are supposed to ask permission, but they do not always do so, and in the cases in which they do, they very often cut their "toila" first and ask permission afterwards, knowing that it cannot then be refused. This is, of course, very destructive, for it allows of no check on localities, and it may often happen that the places selected may be the best and most paying forests, even the sál tracts, which even in their present condition will yield more revenue to Government than even permanent, much less "toila" cultivation.

52. In paragraphs 186 to 192 of the Khoordah Settlement Report, the question of "toila" cultivation is thus gone into and rules suggested:—

"186. Ryots of the eighth class are the cultivators of 'toila.'

"187. Toila is similar to 'jhuming,' and is dry cultivation of oil-seeds, cotton, lentils, or millets on jungle clearings.

"188. When Mr. Wilkinson last settled Khoordah in 1836, he gave permission to all ryots to cut down and clear as much jungle as they pleased for *toila* without payment of rent or permission previously obtained.

"189. When I took charge of Khoordah in 1871, I found that the *toila* system had been allowed to go too far, and that the damage done and being done to the estate by the destruction of jungle was enormous. Since then restrictions have been gradually placed on *toila* cultivation, and ryots are now required to apply first for permission before they can have *toila*, at the same time permission is only given for toila on lands where there is no good jungle.

"190. Toila cultivation is only temporary, and the land is seldom cultivated continuously for more than two years. No right of occupancy is acquired by a toila cultivator on toila lands. The present orders on the subject are, however, disregarded to a great extent by ryots, and much damage is still done.

"191. In order to place further restrictions on toila cultivation and preserve the forests, I proposed to lay down the following rules for the new settlement:—

"*Rule I.*—No toila to be permitted except on lands fit to come eventually under permanent cultivation and which may not be required as forest.

"*Rule II.*—Such tracts to be set aside at the settlement and their limits recorded in the settlement proceedings for each village. Toila limits to be altered, if necessary, from time to time during the currency of the settlement by the Collector.

"*Rule III.*—No ryot to cultivate toila without previously obtaining permission to do so from the Collector or other officer authorized to grant toila pottahs within toila limits.

"*Rule IV.*—Ryots cultivating toila to engage for the land for three years at such rates of rent in money or kind as may be fixed at the settlement.

"*Rule V.*—Toila rents to be allowed as perquisites to sarbarakar of the village for his trouble in marking off the plot, superintending toila arrangements, and preserving toila limits.

"*Rule VI.*—Toila pottahs to give no right of occupancy beyond the three years for which they are granted.

"*Rule VII.*—If at the expiration of his toila lease the land is found to have been brought under permanent cultivation or occupation, the 'toila' ryot will have the prior right to settle for the land as an occupancy *tola* ryot at the lowest rate fixed at settlement for lands of the same description.

"*Rule VIII.*—Toila rules may be altered from time to time during the currency of the settlement by order of the Commissioner.

"192. The rules above proposed would, I think, prove a sufficient check on the frightful waste of jungle which has resulted from the old system of free toila, and the confirmation of the Board is solicited."

The Collector of Pooree in reviewing these paragraphs says as follows in paragraph 28 of his letter of 15th December 1879:—

"28. The rules proposed by Mr. Taylor for the regulation of toila clearings are good; and if the forest is to be preserved, they ought to be adopted. People ought not to be allowed to destroy the forest for the sake of one season's crop, to abandon the land the following year, and destroy more forest, and so on. If they are willing to reclaim arable land and keep it in permanent cultivation they can get it, but that is quite a different thing. Mr. Wilkinson allowed unrestricted toila more than 40 years ago when the time required it, but he entered into no formal engagement on the subject, and the ryots generally are beginning to see that such a state of things could not go on."

And the Commissioner approved of the rules, merely suggesting a reconsideration of the proposal to allow the rents of toila land to go to the sarbarakars.

53. The Board of Revenue, after discussing this question, approved the rules, merely saying—

"The *primâ facie* objection to allowing the sarbarakar to appropiate the rents of toila cultivation is that this will give him an inducement to endeavour to extend this kind of cultivation which is not desirable. Rules I, II, and III, however, provide a sufficient check upon this. On the whole, the Board leave the perquisite to him and approve of the proposed eight rules."

54 The rules were also accepted by the Lieutenant-Governor in paragraph 49 of Government orders, dated 23rd July 1880, as follows:—

"49. (8) *Cultivators of temporary toila or jhum lands* have, of course, from the nature of their tenure, no occupancy rights. Mr. Taylor submits a set of rules for regulating these 'toila' or jhum cultivations. The Board approve these, and as they are calculated to bring this destructive style of tillage under control, the Lieutenant-Governor accepts them."

55. It may therefore be considered as settled that it will in future be only under these rules that toila cultivation will be permitted, but in order to prevent any chance of the more valuable forests being, even inadvertently, so cleared for cultivation, it will be necessary to devise means for stopping cultivation of *toila* permanently in certain definite forest blocks, and this will best be done by notifying such blocks as closed under section 29*(c)* of the Forest Act.

56. *Tola cultivation or the permanent reclamation of waste.*—From paragraph 50 of the Government orders above quoted, it would seem that no definite instructions regarding this have yet been given. But of course, *tola* cultivation would come under the same category as *toila* in regard to its prohibition in the closed blocks. Besides the probability that the blocks so closed would contain but little, if any, land likely to be required for *tola* cultivation, there will always remain the large area of forest land not so closed, in which cultivation can be permanently extended.

57. In the extract from the Government orders of 24th January 1881, quoted above in paragraph 49, it is said "it is not on the one hand desirable to throw obstacles in the way of the extension of cultivation, or needlessly to preserve under jungle tracts suitable for cultivation . . . . On the other hand, it is most important to preserve a sufficient stock of timber trees both for the

present and the future wants of the country, and especially to prevent any radical and mischievous effects on its climate, such as frequently result from the reckless cutting down of forests," and it will therefore be necessary in selecting areas for closing under section 29*(c)* to select as much as possible these which are not so suitable, and this will be done by taking, to a very large extent, advantage of the numerous hill blocks scattered over the estate, quite unsuited for permanent cultivation, while admirably adapted for forest purposes, either for the supply of produce, for affording protection to the sources of streams, or generally for climatic reasons.

58. The Settlement Officer has submitted proposals regarding *tola* cultivation at page 29 of his "Rate Report," and all lands granted for such permanent cultivation will probably be given under those rules, or under such revised rules as Government may eventually publish. In Mr. Taylor's proposed rules, which it is unnecessary to reproduce here, no tola cultivation is to be allowed without previous pottah from the officers authorized to grant such pottahs, and it is provided that the officer shall make full enquiry, and if he finds that the land is applied for for any one of the special purposes detailed, one of which is "for forest or jungle preserves," he shall refuse the applications. I am of opinion that this will best be done as in the case of the leases of waste lands in Darjeeling and Julpigoree districts, by the addition of a clause to Rule VI worded somewhat as follows :—

"And if it should appear that the land applied for contains any trees, bamboos or other growth of value to Government, such trees or forest growth shall be paid for at rates to be assessed by the Forest Officer and approved by the officer granting the pottah on the market value of such produce for the time being. Such rates shall usually be calculated at the rate per acre, any sál or other reserved trees being paid for separately."

59. It might unduly discourage the extension of permanent cultivation if those rates were fixed too high, and it may be well to order that the assessment be made at a percentage of 25 or 50 per cent., as ordered by Government, on the actual estimated value. For sál or other poles, if any exist, there could be no hardship, as such produce very readily finds a market in Khoordah.

60. *Forests on occupied lands.*—In paragraph 2 of the same Government orders (No. 206—104LR, of 24th January 1881, to the Board of Revenue) directions were given that it should be considered whether any restrictions should be imposed on forests situated on occupied lands whether ryotti or lakhiraj. As far as I have been able to ascertain from the Settlement Officer, no such forest lands exist in Khoordah, as both the lands settled with ryots and with lakhirajdars are lands already actually cleared and containing no forest or waste.

CHAPTER II.

FOREST HISTORY, RULES, AND NOTIFICATIONS

61. *Forest history.*—The forests of Khoordah and their unsatisfactory condition began first to attract attention in 1870, when the present Settlement Officer, Mr. Taylor, was appointed Deputy Collector, and reported that most valuable tracts of forest and bamboos had been almost entirely obliterated without much equivalent in the way of lands brought under permanent cultivation. And it is to Mr. Taylor that I am indebted for much information on the commencement and progress of forest conservancy in Khoordah.

62. The following extract from a letter from him to the Collector of Pooree, No 49, dated 4th June 1872, will explain the condition of the Khoordah forests at that time :—

"When I came to Khoordah, I found that the question of jungle and forest conservancy had been entirely neglected ever since the estate came into the hands of Government in the beginning of the present century.

"The consequence is that the forests of valuable sál, piasál, kongora and other good timbers have been entirely cut down, and the timber carried away to supply the districts of Cuttack, Pooree and Ganjam. When I came to Khoordah five or six hundred carts from the adjoining zillahs came daily to our jungles and were laden with wood and bamboos in

defiance of the sarbarakars and Khoordah ryots. In former years, timber, bamboos, firewood and minerals were sometimes allowed by the sarbarakars to be taken on their receiving some trifling royalty to which they had no right whatever.

"Of late years the sarbarakars have got alarmed at the wholesale destruction of the jungles and have endeavoured to prevent outsiders from cutting it, but without success, as until Mr. Manson's time the Government officers appear to have had an idea that Government had no interest in the forests, and that the sarbarakars should be allowed to fight their own battles both as regards preservation of forests and integrity of boundaries between Khoordah and adjoining zemindaries, Peshkars and Tributary mehals. The consequence of this neglect has been, as said before, most disastrous to both the Government and the people of Khoordah.

"Rainfall has decreased all over the estate and in some parts to an alarming extent. Springs, before perennial, now only run during the rainy season owing to the drying and heating of the soil; the heat during the hot season has increased. Cattle now have great difficulty in subsisting during several months of the year from scarcity of grass, which now all dries up for want of moisture and shade.

"Timber to the value of many lakhs of rupees has been lost to Government, and the ryots now find difficulty in getting the small posts required for their huts, and in a very few years no wood thicker than a man's wrist would have remained, if the evil had not been checked. Even now in some places firewood is scarce and the ryots would soon have had to use cow-dung for fuel instead of using it as they now do to manure their crops.

"The timber and firewood, bamboos, &c, actually required by the ryots of the estate for their own use, could easily have been provided, if cut under slight restrictions, without deteriorating the forests to any appreciable extent.

"The three great causes of the wholesale destruction of forests are—

"1*st*—Toila poda (burning off jungle for jhuming).

"2*nd*—Koila poda (burning wood for charcoal).

"3*rd*—Wholesale cutting of firewood, bamboos and timber by the people of Cuttack, Pooree and Ganjam.

"The first, *toila poda*, was encouraged by Mr. Wilkinson, who, at the settlement, with other most shortsighted orders, authorized every ryot to cut down as much jungle as he chose without leave or license in order to grow crops of cotton or castor-oil on the land so cleared for one year, and he strictly forbid them from paying rent to anyone for such lands. The consequence is that each ryot has done hitherto just what mischief he chose to the jungles, and the sarbarakars have had no power to prevent them. Government officers have looked on with indifference till now, when, as in other parts of India, the destruction of timber and firewood has forced itself on the attention of Government. Mr. Wilkinson's order was only a permission and not a settlement, and, I think, we have every right to withdraw the permission to cut jungle without authority and without payment for toila cultivation. I would therefore not allow any ryots to clear jungle for toila cultivation unless they previously obtain a potta for the land from the Tehsildar. The rent charged need not exceed two annas a beegha; but some rent, however small, should be charged, boundaries and areas should be defined, and the ryots should be liable for the rent, year by year, as for other lands, whether they cultivate or not. Mr. Schalch, when at Khoordah, said that he thought we had no right till the next settlement to make any fresh arrangements further than to restrict the toila poda within certain limits in each village; but I totally disagree with him on this point, and am certain that we have not only a legal right to put a stop to such a reckless and wasteful system, but that we are bound to do so without delay, not only in the interest of Government, but in the future interests of the ryots themselves. Of course I would not attempt to make any settlement of toila lands without orders on the subject, and I have hitherto contented myself with trying to prevent the more valuable tracts of jungle from being cut for toila.

"I would solicit full consideration and orders as to the regulation of toila cultivation. The Government would be entitled to any collections on account of toila lands, as the sarbarakars were forbidden at the settlements from taking any rent for such land. The rents if collected could be formed into a small fund for expenses attending jungle and forest conservancy. In considering the question of toila, it must be remembered that the land is not brought under permanent cultivation. It is seldom cultivated for more than one year, and to get Rs. 10 worth of crop the ryot is allowed to destroy sál trees and other timber which, if allowed to grow for a few years, would be worth at least one hundred times that sum to Government.

"The *second* great cause of waste of jungle is koila poda or charcoal burning. The making of charcoal, if done on a good system, would not do so much damage to the jungles as it does at present, but at present a small hole is dug in the ground and eight or ten cart-loads of wood are piled above this hole in a heap and set fire to without any attempt to exclude the air. The whole heap is deliberately burnt into ashes in the open air, and the few charred cinders which settle into the hole are then covered and closed in with earth and turned into charcoal. At the outside, one cart-load of charcoal is obtained from ten carts-loads of wood, the rest of the wood being lost as ash. The charcoal made on this wasteful system is supplied to the whole of the Pooree district, and to parts of Cuttack and Ganjam. I would put a total stop to the making of charcoal for sale out of the estate, and would make the blacksmiths and others requiring it take out passes on payment of royalty, and I would insist on the charcoal-burners adopting an improved and less wasteful system of making the charcoal. Four annas a cart-load

of 25 cubic feet would be a fair royalty to charge, and I would severely punish any man caught with charcoal without a pass. The hardest and best sorts of wood are those in most request for charcoal manufacture.

"*Third.*—The wholesale cutting of timber, firewood, and bamboos for sale in the surrounding districts without pass and without payment has been totally forbidden by me. I give passes for firewood for sale in Pooree and Cuttack at four annas a cart-load, and for posts and common sorts of timber at eight annas a cart-load from those jungles, such as in Banpur, where a good deal of jungle still exists; but I wish for the present to preserve very strictly, sál, piasál, asan, kongora, and some other first class timbers, and all fruit and ornamental trees, and I have issued orders to this effect all over the estate. I would not allow any really valuable timber to be cut at all, even on payment of royalty, for some years to come. As all the large timber has been taken away, the saplings which are abundant in places should be allowed to grow to some size before cutting is again commenced.

"I find it impossible, however, to put an entire stop to the theft and cutting of valuable saplings, and whenever I have occasion to visit the preserves, I always find many traces of recent cutting of valuable timber.

"I have not as yet put any restriction on the taking of bamboos, firewood, brambles, and the necessary posts and wood for their huts or for their own use by the ryots, except here and there where the jungles have been so much cut down that total rest for a few years is required to enable them to grow at all.

"The ends I have in view in the conservancy of jungle and forest are:—

"*1st.*—To keep up the supply of timber and firewood for the future use of the people themselves.

"*2nd.*—To preserve the more valuable sorts of timber as a future source of revenue to Government.

"*3rd.*—To preserve the jungle on all hills and unculturable high lands in order to increase the rainfall, or at all events to preserve the moisture of the soil and prevent the deterioration of the numerous springs which exist in Khoordah, and which are of such vital importance in the interests both of Government and the people.

"I have not as yet had the leisure to demarcate the different patches of jungle which I would wish to preserve strictly even from the cutting of firewood. This last cold season I was prevented by the census work and other urgent business from visiting the various jungles which, as you are aware, are scatterred all over the estate, and until a second officer is appointed to Khoordah, no regular arrangements can be made. For the present I have contented myself with totally forbidding the cutting of sál, piasál, kongora and one or two other sorts of timber, and have generally forbidden the cutting of jungle on hills and high grounds. Ryots are allowed to take what firewood, bamboo, and inferior sorts of timber they may require for use without further restriction than applying for a free pass for timber for posts. The whole question is still in abeyance, and very much has still to be done before the cutting of firewood, timber, and bamboos can be judiciously regulated.

"At present my orders are disobeyed right and left, and the destruction of valuable timber winked at by the canoongoes, the sarbarakars, and the police.

"Before any real control can be established, a small establishment of patrols will be required, and all sarbarakars, dallais, and paiks should be called upon to assist to the utmost of their ability, on pain of dismissal if they do not do so, instead of which they are the first to disobey the orders and to screen others doing so."

63. Thus a sort of forest conservancy was then instituted, the main points of which were—

1. To prohibit removal of produce by outsiders without pass.
2. To charge for forest produce taken for use within the estate, except as much as could be removed by head and handloads.
3. To prevent cutting in the principal tracts of sál and kongora saplings.
4. To prevent *toila* without previous permission.

64. But these regulations were constantly evaded, as Mr. Taylor reported in 1871, and again in subsequent years. His report for 1872-73 is given in Appendix A, and will be found to be an interesting account of the then state of things.

65. In 1874 he reported that the restrictions placed on indiscriminate cutting of forest were beginning to bear fruit in the growth of timber and the collection of forest revenue.

As regards sál, he reported that the saplings were growing splendidly, and I can understand this, for the growth of sál in some of the forests I visited, and notably Majana, was very good. A small sample area, taken at random in Majana on 19th February 1881, showed 1,600 trees per acre. The age, ascertained by felling, was 13 years, so that in 1870, when the first restrictions were placed on the fellings, the age of the forest was scarcely more than two years, and the growth merely scrub.

66. In 1879 a special forest officer was appointed, and since then, and indeed since 1870, there has been a great improvement in the condition of the forests, Mr. Taylor, who has watched them, assures me.

67. *Draft Rules of* 1877.—The first correspondence on the subject with the Forest Department was letter No. 213, dated 1st March 1877, from the Collector of Pooree to the Conservator, forwarding a draft set of rules and asking suggestions. The Collector, Mr. J. Armstrong, concluded his letter by saying:—"In a few years some very good timber has grown up in that estate, and I have much difficulty in preserving it. Timber is very much needed in Orissa, a tract of country in which the rainfall is very uncertain."

68. The rules which had been drawn up by Mr. Greaves, Covenanted Deputy Collector of Khoordah, provided—

1. For prohibiting the cutting of sál, piasál, sissu, fruit trees or trees on hills, except under passes.
2. For permitting other kinds to be taken without pass, but only by single head or handloads.
3. For permitting thorns, dead bamboos and dry fuel to be removed by cart without pass; thorns and dead bamboos, both within and without, firewood only within, the sub-division.
4. For permitting Dholias and Kumbhars to remove certain woods without pass.
5. Passes to be obtained at the sub-divisional office.
6. Passes for other kinds than Rule I to be given by selected sarbarakars.
7. Police interference prohibited in certain cases.

In two appendices the rates and rules for the issue of passes were then given. To this letter the Conservator replied, saying that his slight acquaintance with Orissa prevented his speaking with authority, but that he considered the rules would serve as a first step, the next step being to regulate cuttings; and that he would give further advice after visiting Orissa.

69. *Modified Draft of* 1877.—In his letter No. 1101, dated 10th August 1877, the Collector forwarded a copy of rules which seem to have been put in force. They are practically the same as before, being only slightly modified to insert the provisions of the appendices in the rules themselves and make a few further simplifications.

70. *Draft Rules of* 1878.—On the 2nd December 1878, the Board of Revenue, in their letter No. 912A, dated 2nd December 1878, forwarded copy of a letter from the Commissioner of Orissa giving cover to one from the Collecter of Pooree and a draft set of rules for the Khoordah forests. This draft differed considerably from the rules before discussed, and the letter of the Collector gives an interesting statement of his views, which should be particularly noted, as his remarks regarding the false economy of overcutting and of cutting young timber are important. The rules proposed were much more detailed than those in force, and provided most especially for the issue of passes by sarbarakars.

71. The Board's letter was not replied to by the Conservator till February 1879. The reply (No. 543DF—M, dated 13th February 1879,) proposed that the forests be constituted "Protected Forests" under the Forest Act, and suggested that most of the provisions of the rules being merely administrative, general rules would be better. The Officiating Conservator proposed a draft of such rules, a draft which need not be considered as it is not really practicable.

72. *Establishment sanctioned for the Khoordah Forests.*—In letter No. 909—86F, dated 16th April 1879, the Government of Bengal addressed the Government of India proposing that the forests of Khoordah should be placed under a temporary establishment of Rs. 2,592 per annum, supervised by a "Forest Officer" on Rs. 100 per mensem, and that they be retained under the order of the Collector. In their No. 506F, dated 9th June 1879, the Government of India approved and sanctioned this arrangement, provided that the forests were visited and reported on by the Conservator or some other forest officer. This the Conservator was directed to do in letter No. 402T, dated 21st June 1879. Mr. E. E. Wylly was the Forest Officer appointed.

73. *Draft Rules of* 1880.—In letter No. 409A, dated 15th May 1880, the Board of Revenue forwarded a copy of the Commissioner's No. 878 of 23rd April enclosing the Collector's No. 35F, dated 27th March 1880, and also copy of No. 910—89F, dated 9th April 1879, of the Government of Bengal. Also draft rules for the management of the forests, prepared by Messrs. Handley, Officiating Collector of Pooree, and Wylly, Forest Officer. Some correspondence then took place, and it was agreed that the rules should stand over till the present report could be submitted after the Conservator had visited Khoordah in February—March 1881.

74. *Present system of management.*—The present system of management of the Khoordah Forests is very simple. It consists in the issue of passes by the Forest Officer under rules which were drawn up by the late Officiating Commissioner, Mr. C. T. Metcalfe, C.S.I., and approved, I believe, by the Board of Revenue and Government. These rules are as follow :—

Passes may be issued for the cutting of firewood in jungles to be pointed out by the Forest Officer; such passes shall be confined to the cutting of the undermentioned woods :—

Girari.	Kapásia.	Phonphona.
Bhaliá.	Pitá Korua.	Barábóktia.
Kalchua.	Korara.	Chulizhinka.
Chara.	Narguni.	Got.
Guakoli.	Haladá.	

Kumbhi.	Dháu.
Moi.	Kaduamoria.
Sonari.	Haladá.
Limburmoi.	Ním.
Jámu.	Dhaman.
Giringá.	Bandhan.
Rai.	

2. Passes may be issued for the conveyance of firewood beyond the limits of Khoordah.

3. Passes may also be issued to cut the trees marginally noted for posts and beams, but no pass shall be ordinarily granted to cut the undermentioned trees :—

Sál	*Shorea robusta.*
Piasál	*Pterocarpus Marsupium.*
Suam	*Soymida febrifuga.*
Teak	*Tectona grandis.*
Gambhari	*Gmelina arborea.*
Tinia	*Acacia speciosa.*
Asan	*Terminalia tomentosa.*
Sidha	*Lagerströmia parviflora.*
Mahanim	*Ailanthus excelsa.*
Khyra	*Acacia Catechu.*
Mahanah	*Bassia latifolia.*
Chhuriana	*Ochrocarpus longifolius.*
Kasi	*Briedelia retusa.*
Kongorá	*Xylia dolabriformis.*

4. Passes may also be issued for the preparation of charcoal from the following trees :—

Bhalia.	Kalchua.	Chaldua.
Atundi.	Nehal belli.	Got.

5. Passes may also be issued to Dhobies to cut and remove :—

Toroda.	Atundi.	Guakoli.
Kalcha.	Mahabhelli.	Kurkurchalia.

6. Passes may be issued by the Forest Officer for permission to graze flocks and herds for the collection of barks and other forest produce, for quarrying stones, &c., on such terms as may from time to time be authorized.

7. Such passes may be issued by the Forest Officer under the orders of the Collector of the district.

8. Every pass shall state the period during which the wood may be cut and the character of the wood which may be cut.

9. On the expiration of the period, it shall be delivered to the sarbarakar of the village where the licensee resides: or if it be a pass to remove the wood beyond the limits of Khoordah, it shall state the period within which the wood shall be so removed. The pass shall, on or before that date, be delivered at the nearest police-station to the route followed to the officer in charge.

10. The pass shall distinctly state the locality from which the wood and scrub may be cut and removed.

11. As a rule, wood-cutting shall be confined to the foot of the hills.

12. The pass shall be returned to the Forest Officer by either the sarbarakar or the officer in charge of the police-station, with a note endorsed stating the date on which the pass was delivered.

13. Advices of the passes issued shall be sent to the sarbarakar of the forest tract where the wood may be cut.

14. As regards head and handloads, the Forest Officer will, in his orders to the Forest Conservancy peons and to the sarbarakars, specify the part of the protected forests from which wood may be removed, and if orders are disobeyed the permission to cut scrub may be withheld.

15. While no obstruction is to be raised to residents of the Khoordah estate supplying themselves with firewood, the wholesale destruction of valuable trees and the removal of forest produce, to the loss and injury of Government, is to be prevented.

75. The rates are fixed by further rules for the granting of passes, and dated 7th August 1879, which are as follow :—

Rules for granting passes for cutting and removing wood in the Government Estate of Khoordah.

(1). No sál, piasál or sissu, no mango or other fruit trees, and no trees of any sort growing on hills, will be cut in Khoordah except under passes from the sub-divisional officer.

(2). No pass is needed for taking wood, other than that mentioned in Rule No. I, on the head or in the hands to any place within or without the sub-division.

(3). No pass is needed for taking thorn bushes or dead bamboos or dry wood for fuel by cart or otherwise to any place within the sub-division.

(4). Dhobies and Kumbhars within the sub-division may take without passes, by cart or otherwise, as much wood as they require, for their own use, of the following sorts :—

Brushwood.	Atundi.
Taroda.	Nahalbeli.
Kalcha.	Guakuli.

Kukurchalia.

It is to be understood that the wood so taken is for purposes of their trade and not for sale.

(5). Passes for taking wood or charcoal for use or sale beyond the sub-division will be granted at the sub-divisional office on payment of fees at the following rates :—

		Rs.	A.	P.
Charcoal,	per cart	1	0	0
Firewood	,,	0	4	0
Fresh bamboo	,,	0	4	0
Cane,	per kahan	1	0	0
Wood-posts,	per cart	0	8	0
Cross-beams	,,	0	8	0
Wood for ploughs	,,	0	6	0
Beda wood	,,	0	8	0
Wood for thatching	,,	0	0	0
Bota, for ditto	,,	0	8	0
Split bamboos	,,	0	8	0
Issa konti	,,	0	8	0
Osta	,,	2	0	0

(6). The pass-holders will inform the sarbarakars, within whose sarbarakary the jungle is, of the dates when the wood or charcoal is taken.

(7). If the wood or charcoal covered by pass under rule five is not all taken within the term mentioned in the pass, the holder must apply to the sub-divisional officer for an extension of the term.

(8). The sarbarakars from whose jurisdiction wood is taken for sale or use beyond the sub-divisional limits, will enter on the back of the pass the date or dates when the wood or charcoal is taken, and the quantity taken at each time.

For home consumption or sale within sub-division—

		Rs.	A.	P.
Firewood, fresh,	per cart	0	2	0
Bamboos	,,	0	3	0
Wood-posts and beams	,,	0	4	0
Wood for plough	,,	0	4	0
Beda wood	,,	0	4	0
Cane,	per kahan	0	8	0
Charcoal	per cart	0	8	0
Wood for thatching	,,	0	0	0
Bota	,,	0	4	0
Split bamboos	,,	0	4	0
Issa konti	,,	0	4	0
Osta	,,	1	8	0

(11). The police are never to search houses for wood unless they receive special orders to do so from a gazetted officer.

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76. *Employment of Sarbarakars.*—The main point of the system of working is, it will be seen, the utilization of the services of the sarbarakars or village headmen, who, being appointed by Government, are responsible persons for the management of Government property. These sarbarakars are appointed, one to each mouzah; and the plan adopted is a useful one, as it insures a check being exercised, not only by the forest peons, who are very few in number compared with the large area of forest, but by the headmen of the villages themselves, thereby making the people themselves to some extent participators in the work of forest conservancy—a practice which cannot be too much commended.

77. The Forest Officer appoints the localities in which cutting under pass may be carried on, and in the determination of these localities he is guided by his own knowledge of the country and of the condition of the forest area in the different mouzahs.

78. *Proposed New Rules.*—But it has for some time been recognized that these rules are not sufficiently good, and that the system of revenue collection is still imperfect, so that a fresh set was drafted, as explained in paragraph 73, by the Officiating Collector, Mr. Handley, and the Forest Officer, Mr. Wylly, on 27th March 1880, and submitted by the Commissioner of Orissa with his general approval to the Board of Revenue with his No. 878, dated 23rd April 1880. These rules were sent to the Conservator of Forests by the Board of Revenue for an expression of opinion, and it was arranged that he should visit the forests and discuss the question with the Commissioner and local officers, submitting his proposals for any alterations he might consider necessary.

79. Before, however, discussing the question of the rules, it is necessary to consider the position of the Khoordah forests under the Forest Act and the arrangements to be preliminarily made.

80. *Necessity for more definite Notifications and Rules.*—As already stated in paragraph 11, the Khoordah forests have been declared to be "Protected Forests" under section 28 of the Forest Act, and a notification under section 29 (*a*) has been issued (*see* paragraph 22) declaring certain trees to be reserved. Beyond this no action has been taken, and it was therefore, and probably correctly, judged by the local authorities that forest offences could not be punished under section 32, unless directly committed against reserved trees. To make, therefore, forest offences generally punishable, further notification under section 29 and rules under section 31 are necessary. It may be noticed that it is doubtful whether even offences against reserved trees are punishable until the proclamation required by section 30 has been made, and this has only at all events been very lately made.

81. *Powers of Forest Officer and his subordinates.*—At present neither the Collector of Pooree, the Sub-Divisional Officer of Khoordah, nor the settlement and under settlement officers (both of whom grant passes in the absence of the Forest Officer) are "Forest Officers" under the Act definition. And even the Forest Officer, Mr. Wylly, who is not a gazetted officer, though holding really the position of an Assistant Conservator of Forests, has never been vested with powers under the Act (sections 2 and 75 (*a*)). Nor have he and his subordinates received any powers such as the notification of 28th July 1879 conferred upon officers of the Forest Department in Bengal.

82. *Draft notification of powers under Act VII of* 1878.—Such powers ought therefore to be given, and a draft notification is consequently submitted.

Under sections 2 and 79 (*a*) of Act VII of 1878 (the Indian Forest Act), the Lieutenant-Governor is pleased to direct that the Forest Officer of the Khoordah Protected Forests in the district of Pooree, Orissa, for the time being, shall from this date exercise the powers of a "Forest Officer" under the said Act, under the following sections—

Section 33.—Power to permit prohibited acts in protected forests.
Section 60.—Power to direct release of property seized.
Section 67.—Power to compound offences.
Section 82.—Power to sell forest produce for Government dues.

The Lieutenant-Governor is further pleased to direct that the Forest Officer, forest guards, and road chatias employed in the Khoordah forests, as well as all sarbarakars of

mouzahs in which forest lands are situate, shall exercise the powers of Forest Officers under the said Act under the following sections :—

Section 52.—Power to seize property liable to confiscation.
Section 55.—Power to take charge of Government or confiscated property.
Section 56.—Power to accept charge of property when offender is unknown.
Section 63.—Power to arrest without warrant in certain cases.
Section 69.—Power to seize and impound cattle trespassing.
Section 82.—Power to take possession of produce under Government lien.

83. Such a notification will vest the Forest Officer with the requisite powers for the management of the forests and especially to compound offences under section 67, powers which, with the small establishment which can be afforded for Khoordah, are very necessary.

And if considered useful, the powers so given might be also given to the sub-divisional officer, the Collector of Pooree being given powers as given to the Conservator of Forests.

84. *Notification under Section* 29(*a*).—The only notification as yet published is that given in paragraph 22, which sets aside certain trees as "Reserved," that is, that such trees are not to be cut without special permission. The lists of trees so proposed for reservation is a good one, but it might be increased by the addition of one or two others which it would seem desirable to protect elsewhere than in the closed blocks.

85. *Proposed additions to the list of Reserved trees.*—Such trees are—

1. Bheru, *Chloroxylon Swietenia*, the satin wood, which occurs here and there in the forests and is a valuable wood.
2. Kusum, *Schleichera trijuga*, a tree which yields a good timber. This is the kind most used for the cultivation of lac.
3. Koronj *Pongamia glabra*, the seeds of which are valuable as giving an oil. In Chota Nagpore this oil is much burnt, but the cuttings in Khoordah have rendered it scarce, and the seeds consequently not worth collecting.
4. Sonari, *Cassia Fistula*, which ought to make admirable house-posts. It is very common and its reservation would help to re-clothe the laterite areas where the more valuable kinds are not usually found.
5. Dhau, *Anogeissus latifolia* not very common, but likely to give good house-posts, and having a good serviceable wood.
6. Nim, *Melia indica*, common, especially along roads, and likely to improve the forest.
7. Jam, *Eugenia Jambolana*, another common tree of the poor soils ; its reservation, at any rate temporarily, would much help to induce a better growth.
8. Mohul, *Bassia latifolia*, common, but everywhere cut, contrary to the usual practice in other provinces. It should be reserved as a source of food-supply in time of scarcity, as well as giving a strong good timber.
9. Kuchila, *Strychnos Nux-vomica*.—The tree is extremely common, and, like others already mentioned, would help to improve the forest. Its seeds are collected for export.
10. Gundi, *Mallotus phillippinensis*, should be reserved on account of the value of the dye obtained from it. This would give 22 reserved trees, exclusive of teak and chhuriana, which are planted only. The list would then be as follows :—

Forest trees.—Sál, mahanim, nim, suam, bheru, kusam, sissu, piasál, koronj, sonari, kongora, tinia, asan, dhau, jam, karam, mohul, kendhu, kuchila, gambhari, kasi, gundi.

Planted trees.—Teak, chhuriana, deodar.

Fruit trees.—Mango, jack, tamarind, date, poonang.

86. *Fruit trees*—By including the fruit trees in the notification, it will be unnecessary to make special rules for them, and the rules will thereby be simplified.

87. *Growth of certain other trees to be encouraged.*—There are other trees which it is desirable to encourage the growth of, as that growth will

help to improve the condition of the forests and supersede the thorns and climbers which are now so prevalent. Among such are *simuri, giringa, dhaman, bel, koniari, chara, moi, chakundia, somi, khair, goira, bahera, harra, phansi, kumbi, sidha, nirása, keri kadam, khiro, kotoko, patali, daurango, korera;* but it is probable that, when necessary, instructions from the Forest Officer to the sarbarakars in special cases will have sufficient effect.

88. *Notification under section* 29(*b*).—No rights being admitted in the Khoordah forests, I do not think that any notification closing any portion for a fixed period is at present necessary. As the areas outside the blocks to be closed under section 29 (*c*), hereafter to be discussed, come under more systematic management, it will be possible to improve some of them gradually by temporarily closing them to grazing and the extraction of produce; but it is doubtful if any great good could be done, if I understand the Act correctly, by closing any blocks and at the same time permitting toila. Even if it were, it would not be possible at present to make any definite suggestions, and the matter had therefore be best left to after consideration.

89. It will be noticed that in paragraph B(1) of Mr. Taylor's note (Appendix B to this report), he and the Collector, Mr. Armstrong, who agreed to that note and helped to draw it up, propose to close for ten years against felling and grazing about one-fourth of the area. But I would not advocate this at present; I would simply advocate forming blocks closed against toila cultivation and preventing cutting and grazing wherever necessary in those blocks or outside them under Rules under section 31. When once the jungle has reached a certain height and is pretty well stocked, grazing may be permitted without any great harm, for in a country like this it is only in areas recently cut, and where the young growth is springing up, that its complete exclusion is absolutely necessary. In the bamboo forests grazing will do very little harm, as the supply is so great, and the spread of bamboo so rapid, that the little check it may receive will be of no consequence. Again, as will be explained hereafter, though indiscriminate cutting may be prevented, partial cutting to clear away old stumps, badly shaped stems, and choking thorns, will be really a beneficial operation.

90. *Notifications under section* 29 (*c*).—In paragraph 89, I have already recommended the formation of closed blocks, and it is under this clause that I propose that the blocks shall be closed and the notification might be thus drafted, it being, I think, sufficient, if the rules hereafter proposed are accepted, to close those blocks only against cultivation.

"Under clause (*c*), section 29 of Act VII of 1878, the Lieutenant-Governor is pleased to declare that from the 1st next, the breaking up or clearing of land for cultivation, for building, for herding cattle, or for any other purpose, is prohibited within the following areas or closed blocks of the protected forests of Khoordah in the district of Pooree."

(Here would follow list of the areas)

These blocks should also be ordered to be the blocks referred to under section 1 of the Toila Cultivation Rules as "required as forest."

I would urge that whatever action is taken on this report the first thing to be done, if it be approved by Government, should be the issue of this notification and the notification granting powers to the Forest Officers (*see* paragraph 82). The sooner these notifications can issue, the sooner will the arrangements for protection be properly made.

91. *Should the closed Blocks be not rather made Reserved Forests.*—It may be asked why these closed blocks would not be much more simply declared reserved forests under chapter II of the Forest Act, and this point is certainly worthy of consideration. The Collector, however, and the Settlement Officer are opposed, I understand, to such a procedure, and for the present, at any rate, I am myself inclined to think that the proposals now made are the best. They will obviate the necessity of having two classes of forest and two different styles of management, and will enable the notifications to appear at once instead of after some, more or less, long delay. Were they now made reserves, considerable sums would have to be spent on demarcation; while in order to merely constitute closed blocks, it will be quite sufficient to notify the areas according to their mouzahs and survey numbers, the boundaries of such

mouzahs and survey numbers being well known to the sarbarakars and ryots. Eventually, I am distinctly of opinion these blocks should become reserved forests, but a little experience will best show what areas are most suited for such reservation, and therefore I think that for the present the procedure now proposed should be adopted.

It may be necessary to extend permanent cultivation into parts even of these closed blocks, as land for such purpose becomes available; their being closed at present will ensure economy by making it necessary for the available land in the unclosed portion to be first taken up, and if then more land is required, it may be easily thrown out by notification under section 29 (*d*), instead of having its reservation cancelled under section 26.

92. Then, too, there is the question of administration. As reserved forests, the areas should undoubtedly be under the management of the Forest Department, which in the present state of the Bengal forest establishment is scarcely possible. And the management of the unreserved area is so intimately bound up with the settlement under the civil authorities that it is advisable that it should still so remain, at any rate till the arrangements for the settlement are complete.

93. The only point then for further consideration, in order to obviate this difficulty, is whether the management might not be arranged on the same system as in the Chittagong Hill Tracts, making the Forest Officer subordinate to the Collector as regards the Protected, and to the Conservator as regards the Reserved forests. But the Forest Officer at present is not an officer of the Forest Department, and with his great local experience it would be unwise, even if an Assistant Conservator were available, to make an alteration. With his present small establishment, which is assisted by the civil staff, and with his comparatively light office work compared to that of the department, he is more likely to make a good return, at the very low rates at which produce is taxed. After a year or two's experience of the working of these closed blocks and the improvement in their growth, it will be well again to consider the question of making them, or parts of them, into reserves, and placing the Khoordah forests under the department in the same manner and under the same general regulations as those of the Chittagong Hill Tracts.

94. *Areas proposed to be closed.*—Mr. Taylor has kindly supplied me with copies of the 4-inch map of the Khoordah estate so far as it has been completed, that is, from the Cuttack boundary down to zillah Kohori, and the following are the areas which, after discussion, we agreed should be closed:—

1. *Churang Block*, on the extreme north of the estate, close to Cuttack. These are chiefly low laterite hills, covered at present with scrub forest, but likely to be valuable for the supply of Cuttack station, only about five miles off. The area would include portions of mouzahs Churang, Jijhgarh and Krushnanagar, about 1,400 acres.

2. *Bhandarikhia Hill Block.*—This is a hill parallel to the Trunk Road, a little south of Chandaka. It would include portions of mouzahs Amla Patana and Dalua, about 500 acres.

3. *Chandaka Block.*—This is a large and compact block, including considerable portions of mouzahs Bhuasuni, Tulsadey, Chandaka, Simili Patana, Amla Patana, and Dalua. In its area is the small ironwood forest, and some hill tracts of considerable size and value.

4. *Kantabar Block.*—Portions of mouzahs Bhola, Kantabar and Bhagbatipur. It adjoins No. 3 and really continues it, being similar.

5. *Barhapita Block.*—Portions of mouzahs Barkapita, Hariramara, Kadamjhar, Kistnamohunpur, Koduamunda, Binjhagiri and Fakirpara and continues Block 4.

6. *Tarkai Block.*—Including portions of mouzahs Tarkai and Bantal.

These blocks 3, 4, 5, and 6 will together make one large forest of about 22,000 acres, and this forest, from its proximity to Cuttack and the Madras Trunk Road, will undoubtedly be valuable. Its present condition is comparatively satisfactory, and it will eventually make a valuable "reserve."

7. *Kujimahal Block.*—South of the Trunk Road near Chandaka, including portions of mouzahs Sundarpur and Jaganathprosad, above 700 acres.

8. *Kantabar Sál Block.*—An area of about 600 acres near the Trunk Road, containing sál forest.

9. *Andharoa Sál Block.*—About 400 acres of sál forest near Andharoa, east of the Trunk Road.

10. *Ratanpur Block*—About 2,000 acres in mouzahs Paniora, Ratanpur, Madhupur, Bhatkuri, Kumbharbast. Level lands.

11. *Bharathpur Block.*—About 2,400 acres in mouzahs Bharathpur and Joklandi, east of the Trunk Road. These are level scrub forest lands.

12. *Rampur Block.*—About 2,000 acres in mouzah Rampur and parts of Lakhisagar and Bargarh Scrub forest.

13. *Deulia Block.*—Near Maindasal, including parts of mouzahs Deulia Patana, Mangobindpur, and Bidyadharpur, about 600 acres.

14. *Majana Sál Block.*—Sál areas in mouzahs Majana and Bantal containing about 500 acres.

15. *Tarkai Sál Block.*—Sál forests of about 700 acres in mouzahs Tarkai, Harapita and Bantal.

16. *Giridaripur Sál Block.*—Sál areas in Giridaripur, Santrapur and neighbouring mouzahs containing about 850 acres.

17. *Pangarsingh Sál Block.*—Sál forests of about 400 acres in mouzahs Pangarsingh, &c.

18. *Kuspála Sál Block.*—About 600 acres in mouzah Kuspála.

19. *Bayapali Block*—Forest in mouzahs Rasalo, Sanpadar, Jamsahi, Biswanathpur, Bayapali, about 700 acres, chiefly hilly country.

20. *Duburi Hill Block*—Forest in mouzahs Samsunderpur, Nandpara, Sianapali, Bolgarh, Dabardhua, Rolsingh, Sohalipara, Masdabari, Pankalsahi, about 900 acres.

21. *Khanpali Hill Block*—Forest in mouzahs Kontara, Mandalsingh, Palidigheri, Kothpala, Khanpali, Kuspála, Pankalsahi, Mardaberi, all hilly country, about 3,000 acres

22. *Nagapala Hill Block*—Forest in mouzahs Nagapala, Krushnapur, Latbandh, Benagaria, Maheeban, Brundabun, Khalikot, Korpara, Asánpali, Arakhpali, Ichapur, Haripur, Jorapara, Nilkanthpur, Sanpur, about 3,400 acres.

23. *Burnai Hill Block.*—The hill south of and Khoordah, and in Khoordah mouzah, about 1,250 acres.

24. *Jaripur Block.*—Parts of mouzahs Jaripur, Chotrapur, and Bengitangi, about 1,200 acres.

25. *Ogalpur Block.*—Parts of mouzahs Kurum and Ogalpur, about 800 acres.

26. *Ramesswar Block.*—Parts of mouzahs Ramesswar, Jagatpur and Balarampur, the hill close to Jenkia, about 600 acres.

27. *Chitrakot Block.*—Parts of mouzahs Ichabati, Khajunipara, Chitrakot, and Raulhaj, about 600 acres on hills between Jenkia and the Chilka lake.

28. *Barpokria Block.*—Parts of mouzahs Tikalia, Kumunda, Atala, Lalsingh, Totopara, Ratmali, Baghaiput, Botanda, Barpokria, Patrapara, about 1,600 acres, a hill range parallel to the Trunk Road between Jenkia and the Ranapur boundary.

These blocks give a total area for the zillahs north of Tangi of about 72 square miles.

These blocks have been described pretty accurately from the 4-inch map, but will still require to be corrected, especially as regards the sál tracts, for the notification, by the local authorities. As regards the Kohori and Banpur forests, I shall have to leave the final suggestion of the areas entirely to Mr. Taylor and Mr. Wylly, but they will probably consist of—

29. The *Mulger Block*, south of Jenkia.

30. The *Manglajuri Block.*

31. The *Tangi Block*, a small hill block near Tangi.

32. The *Kohori Block*, a large area, chiefly bamboo forest, in Kohori, west of the Trunk Road.

33. The *Joymangal Block*, south of No. 29.

34. The *Bhalari Block.*

35. The *Sonakalla Block.*

36. The *Suleri Block*, a fine isolated hill near Sonakalla.

37. The *Chilka Lake Hill Blocks.*

38. The *Frontier Block.*

39. The *Forests of the Mâls of Banpur*, called the Aurung Block, Banpur Block, &c., &c.

The total area of these blocks will be rather more than 100 square miles, or perhaps 200 square miles, in all.

95. The draft notification will, as already arranged, be prepared by Mr. Wylly, the Forest Officer, with Mr. Taylor's assistance. This notification should specify the survey numbers as well as the mouzahs, and the exact area should be selected so as to give the least difficult boundaries. It will, of course, be a great convenience if such boundaries, if not coincident with mouzahs, follow natural features, such as rivers, hills, roads, or the edges of cultivation, as much as possible.

96. *Forest Rules.*—We now proceed to the discussion of the Forest Rules under sections 31 and 41 of the Forest Act, which will be considered on the assumption that the notifications recommended will have been previously published.

In paragraph 73, it was stated that a draft set of rules was prepared in March 1880 by Messrs. Handley and Wylly, the Collector and Forest Officer, and submitted to Government with the approval of the Commissioner. Since, however, these rules were drafted, the civil authorities have proposed that the system of collection of revenue from the tenants of the estate by a house assessment, which in the proposed rules, paragraph XIII, was made optional only, should in future be compulsory (*see* paragraph C 1 of Messrs. Armstrong and Taylor's note "Appendix B"), and this will very considerably simplify the rules. Besides this, the notification under section 29 (*a*), declaring certain trees to be reserved, will, especially with the additions to the list proposed in paragraph 85 of the present report, make it unnecessary to enter into any such elaborate classification of species as was proposed by the draft rules of March 1880.

97. *Classification of species of trees unnecessary in the Rules.*—I am distinctly of opinion that such an elaborate classification is unnecessary. The lists do not and cannot be expected to include all trees and shrubs found in the forests and, besides, the native names vary considerably; those given by the Banpur ryots differing, for instance, considerably from the names in use in Dandimál.

98. *Admission of special privileges unnecessary.*—The system of passes given on a house assessment covering a large variety of forest produce, firewood, brushwood, thorns, as well as the grazing of cattle, will, I think, make it unnecessary to admit the special privileges granted by Messrs. Handley and Wylly's rules XV to XVII, to potters, washermen, blacksmiths, braziers, bell-metal workers and others, as such persons will, for the ordinary fee, be at liberty to remove the produce they require without further trouble.

99. *House assessment preferable as a means of collecting the revenue.*—It should be stated that the substitution of this house assessment for the current procedure of separate passes is one which commends itself not only as being much more simple, and as avoiding the necessity for special privileges, but also as being approved by the people themselves, who are all, I am given to understand, in favour of it. Their reason for such an opinion is that the pass is taken out once for all, that they are not tied down to use head and hand carriage only, and that they are absolved from the trouble entailed by frequent journeys to obtain passes, often at an inconvenient season, when they can ill afford to leave their crops.

100. Considering these points, it would be necessary considerably to alter the draft rules, and I have consequently considered it best to draft a fresh set, embodying the main points of the draft of March 1880, and the subsidiary rules appended to it, but not proposed to be promulgated under any special section, as well as the points mentioned in Messrs. Armstrong's and Taylor's note already referred to. There are many other points of detail in the draft of 1880 which are open to objection, and some of the provisions are merely recapitulations of the Act, but it is needless to discuss these.

101. In drafting these rules, I have chiefly proceeded in the order of the clauses of the sections of the Act, and have attempted to make the procedure as consecutive and simple as possible. I have omitted fixing any rates, as such rates being always liable to alteration will, in my opinion, be better fixed

by separate notification. It would be very inconvenient and unnecessary if every time that it was desirable to alter a rate, the sanction of the Government of India, as well as of the Government of Bengal, had to be obtained.

102. It should also be explained that there are certain acts and prohibitions which require no special rules, but are already provided for in Act VII. Thus in section 32, clauses (*a*) and (*f*) provide for the prevention of damage to reserved trees, while clauses (*d*) and (*e*) regulate the protection of reserved trees and the forests containing them from fire.

Draft Rules under Sections 31 *and* 41 *of the Indian Forest Act* (*Act VII of* 1878) *for the Khoordah Protected Forests.*

1. No trees, timber or other forest produce shall be cut, sawn or gathered in or removed from the Khoordah protected forests without prepayment in full to the Forest Officer of the charges due thereon at rates which shall be notified from time to time by the Lieutenant-Governor.

2. All inhabitants of towns or villages being tenants of Government on the Khoordah estate shall be permitted to remove firewood, brushwood, thorns, and dead bamboos for fencing and the erection of watch-towers, for their own use only and not for sale, and to graze their cattle used for domestic purposes, on taking out, by prepayment to the Forest Officer, an annual license for each separate house and family in such village, such license to be paid for at rates which shall be from time to time notified by the Lieutenant-Governor.

3. The forest localities in which the permission to remove firewood, brushwood and dry bamboos and to graze cattle shall be permitted, shall be fixed yearly by the Forest Officer, and shall be entered on the pass given by him. And the permission so given shall be held to permit such cutting or grazing in those localities only. Provided that, in the event of brushwood and dry bamboos not being available in the localities so appointed, the Forest Officer may, on receipt of special application, appoint some other locality for the collection of such brushwood and bamboos, entering the same on the pass.

4. Passes shall be taken out for the year only, and shall be granted on or before the 1st April in each year. Any pass taken out during the course of the year shall be paid for as for the whole year, and shall cease to hold good on the 31st March following the date of commencement.

5. The holder of any pass issued under Rules 2, 3, and 4 for the removal of firewood, brushwood and stakes from and the grazing of cattle in the Khoordah Protected Forests shall produce the said permit or license whenever called upon to do so by any Forest, Revenue or Police Officer, and shall further be bound to deliver up to the Forest Officer such pass on the expiry of the year for which it holds good.

6. All inhabitants of towns or villages in the vicinity of the Khoordah Protected Forests being tenants or occupants in the Khoordah estate shall be permitted to remove building stone, limestone, and laterite free of payment, on taking out a pass for such permission from the Forest Officer.

7. All persons, whether tenants or occupants of the Khoordah estate or not, desirous of entering the Khoordah protected forests for the purpose of cutting, sawing, converting, and removing forest produce for the purposes of trade or for use outside the limits of the Khoordah estate, or for grazing cattle not exempted under Rule 2, may obtain passess for such cutting, sawing, conversion or removal, or for such grazing, from the Forest Officer, on payment of such rates as may from time to time be notified by the Lieutenant-Governor under Rule 1.

8. Passes issued under Rule 7 shall hold good for such period as may be fixed in each case by the Forest Officer, and not more than one calendar month only in the case of forest produce, and one year in the case of grazing. And the holder of any such pass shall be bound to produce it at any time when called upon to do so by any Forest, Revenue or Police Officer.

9. On granting any such pass, the Forest Officer shall specify on it the locality (mouzah or mouzahs) in which the permission to cut, convert or remove forest produce, or to graze cattle shall be exercised. The pass-holder shall proceed to the sarbarakar of the mouzah within whose area such pass is ordered to hold good, and the sarbarakar shall point out the place from which the produce is to be taken. On expiry of the time allowed by the Forest Officer, the pass-holder shall deliver up his pass to the sarbarakar, who will record the date on it, and within ten days from such date the pass-holder shall return such pass to the Forest Officer by post or through the subordinate forest officers.

10. Should in any case the pass-holder be unable to remove the produce covered by his pass within the time specified, he may obtain renewal on application to the Forest Officer, and on payment of such fee for renewal as may be fixed from time to time by Government.

11. Should it be found that owing to the negligence of any person or persons holding passes to remove forest produce or to graze cattle within the Khoordah Protected Forests, fire has broken out in the forests, the person or persons by whose negligence the fire was caused, shall be liable, besides any penalty inflicted under section 32 of the Forest Act, to have their passes cancelled for the remainder of the year or period for which they were granted, and all produce not removed, confiscated at the discretion of the Forest Officer.

12. The quarrying and extraction of stone for building and road-making by officers of the Public Works or Road Cess Departments is permitted without previous pass, provided that the Public Works or Road Cess officers so quarrying and removing stone shall measure and keep account of such stone, paying to the Forest Officer before the 15th March in each year the sum due at the rates in force for the time being for such stone removed.

13. The clearing or breaking up of land for cultivation either as "toila" or "tola" within the limits of the Khoordah Protected Forests open blocks shall only be made in accordance with such Rules as may be ordered from time to time by the Lieutenant-Governor. And no such clearing, if permitted, shall be made by fire, except by the special permission of the Forest Officer.

14. The produce of thinning or the clearing away of dry and fallen wood, broken and badly shaped trees, and other such produce from any portions of the blocks closed under section 29 (*c*) shall usually be sold, standing, by public auction, the purchaser being bound only to remove such trees, wood or produce as may be marked by the Forest Officer for removal, to use such roads as may be pointed out by the Forest Officer, and to complete such removal within such time as the Forest Officer may specify.

The sales of dead, dying and windfall fruit trees shall be made by public auction in the same manner, half the proceeds of such sale being paid to the sarbarakar of the mouzah within whose limits the tree is removed. And the said sarbarakar shall, in consideration of such payment, be bound to replace the tree so removed by a seedling of the same or some other kind as ordered by the Forest Officer.

15. Except when the Forest Officer may consider that it may be permitted without damage in any of such blocks, grazing and the cutting of firewood, brushwood or stakes under Rules 2 and 7 will not be permitted in the blocks closed under section 29 (*c*). The cutting of bamboos and canes and the removal of minor produce, such as gundi, osta, harra, kochila seeds, achhu, &c., will be permitted in such blocks under passes to be taken out in the same manner and under the same conditions as prescribed in Rules 7 to 10. Provided that, when he may consider it useful, the right of collection of any article of such minor produce in any particular blocks may be sold by the Forest Officer by public auction or by tender in such manner and at such season as he may think fit.

16. Any person who desires to transport any forest produce through the Khoordah Protected Forests from territory outside the limits of the Pooree district shall use only such roads as may be notified from time to time by the Collector as open for such transit. And any such person shall be bound to take out a pass for such right of transit at such places on the roads so appointed and from such forest subordinates as the Collector may order. For each pass so taken a fee will be paid at such rates as may from time to time be notified by the Lieutenant-Governor.

17. The holder of any pass to cut and remove timber, firewood, brushwood, stakes, thorns, bamboos, canes, stone or other forest produce, to make charcoal or to graze cattle derun these rules shall be bound to abide by the following orders:—

1. All trees, shrubs and brushwood, bamboos and canes shall be cut at a height not exceeding six inches from the ground.
2. No trees, saplings or shrubs shall be dug up by the roots.
3. Holders of passes to collect "gundi" and other fruits and seeds shall not fell, cut or damage the trees from which such collection is made.
4. No bamboos of less age than two years shall ordinarily be cut.
5. Branches of trees shall not be cut or lopped for feeding cattle grazing in the forests.
6. Charcoal shall only be made and lime burned in such localities as the Forest Officer or the sarbarakar, under his instructions, shall point out. And only such wood as the Forest Officer may permit shall be taken for the purpose of burning lime.
7. All posts and other wood required for constructing temporary huts, carts, saw-pits and such purposes shall be paid for at the rates in force, and be only taken in such localities and of such kinds as the Forest Officer may direct.

103. I am of opinion that these rules, modified, if necessary, to suit the views of the Commissioner and local authorities, which views, however, I think, they already fairly represent, as they have already been approved by Messrs. Godfrey and Taylor, or altered by order of Government, will be more concise and easy to undrestand than the rather long ones of Messrs. Handley and Wylly's draft.

104. *Rate Notifications under the Rules.*—The notifications which will be required if these Rules are passed are—

1*st.*—*Under Rule* 1—Rates for forest produce.

2*nd.*—*Under Rule* 2.—License-fee rates for Khoordah estate householders.

3*rd.*—*Under Rule* 10.—Renewal fees.

4*th.*—*Under Rule* 13.—Prescribing that the *toila* rules or *tola* rules already sanctioned are to be the rules referred to.

5*th.*—*Under Rule* 16.—Roads by which outside produce may pass (by the Collector). Rates for transit of outside produce through the forests.

105. I would propose then that the following be issued:—

The Lieutenant-Governor is pleased to declare that from the date on which the rules of the . 188 , come into force in the Khoordah "Protected Forests" in the district of Poorec, Orissa, the following shall be the rates for forest produce:—

Under Rule 2.—License-fee rates for Khoordah estate house-holders, 8 annas per house.

(This is the maximum referred to in paragraph C 1 of Appendix A, and I think this amount, which is really small, can be safely levied without hardship to the people.)

Under Rules 1, 7—

Timber of Reserved kinds—

	Rs.
Sál, piasál, sissu, kongora, per tree	10
Other kinds (except fruit trees which will always be sold specially)...	5

Poles under 6 inches diameter—

	Annas.
Sál, piasál, sissu, kongora	4
Other kinds	2
Firewood—per cart-load	8

(This is an average of the rates proposed by Messrs. Handley and Wylly, viz. 12 annas, 8 annas, 6 annas, 4 annas, for different classes. I would suggest one rate only being fixed as being simpler.)

Charcoal—

Per maund	4 annas.
„ cart-load	2 rupees.

(Messrs. Handley and Wylly give Rs. 1-8 per cart-load. This would be about 3 annas, charcoal carts usually carrying, I think, eight maunds; but 3 annas is low, and as nearly *all* the charcoal is exported, I think 4 annas might be charged.)

Bamboos—

	Annas.
Per cart-load	3
(If split) per cart-load	6

(These are less than the rates proposed by Messrs. Handley and Wylly and are the rates actually in force. Seeing that the supply is so much greater than the demand, I would not recommend any change at present.)

	Rs.	A.	P.
Canes—Per cart-load	1	0	0
Stakes— Ditto	0	8	0
Brushwood—Per cart-load	0	2	0
Blocks for sugar and oil-mills, gundis—Each	1	0	0
Achhu—Per cart-load	2	0	0
Kamelagundi powder	5	0	0

(This is very valuable and is only exported.)

Kuchila seeds, Harra, Bahera, and *Koronj* fruits ...	0	8	0
Osta bark—Per cart-load	3	0	0

Stone, &c.—

Laterite per 100 cubic feet	0	8	0
Ghooting lime „ „	1	0	0
White clay. „ „	1	0	0
Red „ „ „	1	0	0
Granite and other hard stone, per 100 cubic feet... ...	0	10	0
Burnt lime, per maund, including firewood	.....		

(At present the proposed rate is per 100 cubic feet = Rs. 2-8. I would suggest that a rate per maund or cart-load would be better.)

Pasture—

	Annas.
Buffaloes per month	1
Goats and sheep	½
Bullocks, cows, and ponies	¼

(The present rates are far too low for *outsiders*, and I would even double what I have now proposed. The rates in the Julpigoree district Reserved Forests are per month—

	Annas.
Buffaloes	3
Bullocks, cows, and ponies	2
Goats, sheep	1

and I would almost recommend these.

It will be seen that I have re-classified the animals, not according to size, but according to the damage they do to vegetation. Indeed, I am by no means sure that sheep and goats should not come even before buffaloes.)

Under Rule 10.—Renewal fee 10 per cent. on original rates.
Under Rule 16.—Rates for transit passes.

(This should be suggested by the local authorities. I cannot give much opinion as to the amount, but it might be nominally put at one anna per cart and one pice per coolie load.)

CHAPTER III.

GENERAL PROPOSALS FOR WORKING.

106. *Proposals for future work.*—If the proposals made in this report are agreed to, there will be two classes of forest in the estate, viz.—

1. The closed blocks.
2. The unclosed portion.

107. *Unclosed portion.*—The management of the unclosed portion will be first considered.

It has been proposed to divide the forests into blocks which should be closed regularly in rotation for 10 years. But although some system of closing, modified, may be useful, I am not inclined to recommend adherance to a system of rotation which would, perhaps, even to their disadvantage, prescribe absolutely the closing of definite areas. I would, instead, recommend that the Forest Officer, when appointing the land in which the inhabitants of a mouzah or group of mouzahs should be permitted to cut, should appoint an area which should be cut clean to the ground of all but the reserved trees. The area so cleared will then be allowed to reproduce, cattle being excluded, until the Forest Officer may again consider that grazing may be permitted, and afterwards that it may again be cut. In this way, I think it will be found that a very steady improvement will be noticeable, and if care is taken to cut clean to the ground the twisted, badly shaped trees, or to clear off thorns and climbers, there will usually be a good crop of young shoots within a year of the cutting.

When it is considered how scattered and badly defined are the areas of unclosed forests, it is obvious that no fixed order of cuttings can be laid down for the Forest Officer's guidance, and that it will be much better if it is left to his local knowledge and experience to regulate the cuttings, at any rate until the next inspection. But in order to make sure of proper reproduction, it will be absolutely necessary to exclude cattle for some few years in the areas which are cleared, and consequently the more regular the Forest Officer can make his cuttings the easier this will be. I do not think it will be necessary to notify the areas closed against grazing, if strict orders are given to the sarbarakars, who should be got to assist in the protection. But a year or two's experience will settle this.

108. *Cutting of reserved trees.*—As regards the reserved trees, the Forest Officer, when he inspects the localities, may allow such as may be too old,

badly grown or rotten for giving good trees, to be cut with the rest, so that they too may send out fresh shoots. This will probably only happen at the first cutting; after-cuttings will then merely have the effect of letting in light to, and removing thorns and creepers from, the forest of reserved species. But it should be distinctly understood that reserved trees are not cut at all without special permission of the Forest Officer in each case.

109. *Grazing.*—As regards grazing, I would first recommend the prohibition of grazing to the goats from Ganjam, the rest of the cattle would graze in the unclosed area as at present, except in the portions under reproduction. And as it is chiefly due to graziers that the forests get burnt, it should be made clear that in the event of fire breaking out in any locality the permission to graze may be withdrawn from the persons grazing in or near the locality.

110. *Toila cultivation.*—In the event of *toila* cultivation being allowed in any localities, such localities should be selected in places where the reserved trees are few, and whenever such may be possible, the *toila* cutters might be induced to leave the reserved trees standing.

111. After the next inspection, and when these proposals have had a few years' trial, it may be possible to make a more definite plan of operations. In the meantime, I am convinced that such a plan would be premature, and that it will be better to do as I have suggested, and leave matters to the discretion of the Forest Officer under the present proposals.

112. *Closed Blocks.*—In the closed blocks a more regular system of work should be attempted. There are three classes of forest in these blocks, viz.—

1. Sál Forest.
2. Bamboos.
3. Mixed, usually Hill Forests.

113. *Working of the Sál Forests.*—The condition of the sál forests has already been described generally in paragraph 19. They are, however, in places much spoilt by the prevalence of badly shaped and twisted stems, and by the fact that, when last cut, the majority of the trees were cut at some distance, usually about three feet from the ground, the result being that there is a thick stump with a number of poles issuing from the top, giving the tree the appearance of a pollard. There are also a few comparatively large trees, usually hollow and rotten, or so twisted that they are almost unfit for anything but firewood. And, lastly, in some of the sál forests bamboos, thorns and trees of the unreserved kinds often overtop a fine young growth and prevent it from properly developing. With proper care and precautions, I do not think there should be much fear of fire. There is little or no grass jungle such as proves in Northern Bengal such an obstacle to forest regeneration, and there is a ready sale for all material cut, so that I have no hesitation in recommending that what may be called *improvement thinnings* be made gradually throughout the area.

114. There are about 5,000 acres of sál forest, and if we therefore agree that this shall all be gone over in the next ten years by improvement thinnings, we shall be able to clear 500 acres per year. I would not recommend the whole of this area being taken in one block, but in, say, two blocks, which for the present should be in—

	Acres.
Zillah Dandimál	250
Kuspála, Manickgora and Panchgarh ...	250

The improvement thinnings for the current year might be made with advantage in mouzahs Kantabar and Kuspála.

115. These operations have been discussed on the spot with the Forest Officer, and if an Assistant Conservator of Forests is, as has been proposed, appointed for the Mahanadi Valley forests, he will easily be able to assist.

116. Early in the season the Forest Officer should proceed to the locality to be thinned and carefully go through it, marking the trees and stumps that he proposes shall be removed. In selecting the trees for removal, he should pay great attention to the crop of seedlings or shoots, and to whether there are sufficient trees of good growth in the neighbourhood, and he should be careful never to cut too much. It is always better to leave a doubtful tree.

I would not recommend that Government should undertake the work of cutting and removal for sale of the result of the thinnings, unless perhaps, as Mr. Wylly once suggested to me, the Forest Officer were himself to do the felling, leaving the trees so felled on the ground for removal by purchasers. In either case the material will probably be best sold by auction in lots of 10 to 20 acres at a time, such lots being marked off if possible by paths, streams or other natural features to prevent dispute.

117. These thinnings will, I am sure, give a good return. I think, as I have already said in paragraph 41, that at least 100 poles may be yearly extracted per acre, giving, at four annas per pole, Rs. 12,500. If to this we add the sale of other kinds, firewood, &c., the revenue from this alone should be Rs. 15,000.

118. *Bamboo Forests.*—The system of working the bamboo forests need be very simple. It should consist of the sale by permit of mature bamboos to be cut by the purchaser. The only rules which it is necessary to observe, at any rate at present, are—

1.—That no bamboo under two years of age should ordinarily be cut.
2.—That all bamboos cut should be cut close to the ground.
3.—That care be exercised not to injure the younger stems, and especially the new shoots.

119. The yield of the bamboo forests has been already spoken of in paragraph 42, where it was said that they might give 1,600,000 bamboos yearly. If the whole amount were sold at the ordinary permit rate of three annas per cart-load of about 60 bamboos (we counted some carts on the Trunk Road to see what the average number was) or 320 bamboos per rupee, the amount realized would be Rs. 5,000.

120. The Forest Officer should use his endeavours to encourage the sale of bamboo, as it certainly seems that the present demand is nothing like as much as the probable annual yield. The revenue of the last three years has been Rs. 589, Rs. 566, and Rs. 933, respectively; that the amount in 1880-81 is nearly double that of former years is probably due to the bamboos having grown larger. We cannot hope at once to reach the probable revenue of Rs. 5,000, but we should hope to get at least half that amount.

121. *Mixed Forests.*—What these forests most require is rest, but there are many places where *improvement thinnings*, similar to those proposed for the sál forests, will be of great use, and in all will they be useful as the forest grows up. Take, for example, the Burnai Block, which is well known and which has been long enough protected to make improvement thinnings useful. Its present condition is that of a coppice forest of about ten years old, but much spoilt by old stumps and their pollard-like shoots, by thorns and matted climbers. If this could be carefully gone over, the thorns and climbers cut as well as *Ficus*, badly shaped trees and old stumps, there would remain a very fair crop of poles which would, I am sure, come away well, and I am convinced that the operation will not only pay its expenses, but give a good revenue. There are many other blocks which might be gradually taken in hand, those with the oldest growth being first chosen. After a few years the system can be revised if necessary, and a more detailed plan of operations instituted.

122. The marking of the trees to be cut should, at any rate for the first year or two, be done by the Forest Officer personally, and he can then teach his subordinates. The removal might be done either—

(1) by allowing the villagers to remove the marked wood as well as climbers and thorns under their yearly permits;

(2) by selling the right of cutting and extraction of the material by auction for certain areas as in the case of the sál forests;

(3) by allowing contractors to fell, stack and afterwards remove, after measurement by the Forest Officer, paying for the produce so removed a fixed rate for 100 maunds or per 100 cubic feet of stacked wood;

(4) by cutting departmentally and selling the produce so cut by auction.

The circumstances of each case will best decide which of these systems of disposal will be best, but I would not recommend cutting by departmental agency if one of the other systems can be chosen.

123. In the northern mouzahs the blocks to be thus worked will be the following:—

		Acres.
1.	Churang	1,400
2.	Bhandarikhia	500
3, 4, 5, 6.	Chandaka, Kantabar, Barhapita, and Tarkai ...	22,000
7.	Kujimahal	700
10	Ratanpur	2,000
11.	Bharatpur	2,400
12.	Rampur	2,000
13.	Deulia	600
19.	Bayapali	700
20.	Duburi Hill	900
21.	Khanpali	3,000
22.	Nagapala	3,400
23.	Burnai Hill	1,250
24.	Jaripur	1,200
25.	Ogalpur	800
26.	Rameswar	600
27.	Chitrakot	600
28.	Barpokria	1,600
	Total ...	45,650

At a rotation of 15 years for the "improvement thinnings" there would be 3,000 acres to be yearly thinned. I would recommend for 1881-82 that operations be begun by the following:—

23.	Burnai Hill	1,250
3, 4, 5 and 6.	Part of Chandaka, &c.	1,750
	Total ...	3,000

the locality chosen being, as already recommended, that in which the growth is oldest.

124. Similar arrangements might be made for the forests of zillah Kohori and Banpur, thinnings being undertaken this year, say, in Suleri hill and Banpur mâls, on an area nearly equal to $\frac{1}{15}$ of the closed portion in these zillahs, excluding sál and bamboo.

125. In all cases in which improvement thinnings are made, the Forest Officer must be careful rather to cut too little than too much, and in no case to leave large blanks. The chief point for him to consider will be how to further the growth of the trees of the reserved kinds as well as other good species, such as are enumerated in paragraph 87.

126. The financial results of these operations cannot be readily estimated, but if they are put at the low figure of Rs. 5 per acre, we should have Rs. 15,000 for the northern mouzahs and about as much for the southern; Rs. 30,000 in all.

127. Reproduction in these forests is chiefly by coppice shoots and occasional seedlings, and it will be well if this can be assisted in the blocks which are thinned, and after the thinnings by artificial means.

128. *Nursery.*—As the whole of Khoordah is so easily reached by means of the Trunk Road, it will be best at the outset to establish a nursery only at some such central place as Khoordah. There is already a small nursery at that place, in which Carobs and a few trees have been grown; but the locality is not a good one, and a better can easily be selected near the old fort. Mr. Wylly estimates the cost of a nursery at the following for the first year:—

	Rs.
Fencing	75
Seeds	25
Two wells	40
Labor in preparation	60
Establishment of 2 mallies at Rs. 5 per month	120
Total ..	320

The plants to be raised I would recommend to be teak, sissu, kongora, piasál, gundi. I would not recommend the raising of sál plants in nurseries, but seeing the success attained by Mr. Taylor in sowing sál in the forests near Khoordah, seed might be put out in lines in the forests in slightly prepared holes. Lines 25 to 30 feet apart should be taken and the seeds put in holes in these lines, and comparatively close together.

When ready for transplanting, the plants which have been grown in the nursery should be put out in blank places and in spots where the amount of reproduction of good kinds is scanty. In the blocks in which improvement thinnings are made, especially if accompanied by artificial sowings or planting, cattle must be regularly excluded, at any rate for some years.

The formation of the nursery should be arranged for this year so as to utilize the coming rainy season, and though transplants may not be available this year, seed may be put out in the forests if the thinnings can be first completed.

The successful carrying out of these proposals will entail some increase of work for the Forest Officer, but this will be chiefly at the outset: as experience is gained, the difficulties will decrease.

129. *Roads.*—In the note given in Appendix B, the proposal to utilize the whole or part of the surplus revenue in the construction of roads is made, and it will certainly be a good plan to devote a sum of money yearly to this purpose. But Mr. Armstrong's proposal to make these roads through the District Road Cess Committee does not commend itself to me. If his proposal were carried out, I expect the result would be that the money would not be spent. The Road Cess Engineer would not, I fancy, care to spend much time making bridle-paths in forest tracts, and I see no reason why these paths and roads should not be done just as well and just as cheaply by the Forest Officer.

CHAPTER IV.

ESTABLISHMENTS AND FINANCIAL PROSPECTS.

130. The present sanctioned scale of establishment for the Khoordah Forests is—

	Rs.
1 Forest Officer	100
Travelling allowance	50
8 Peons, at Rs. 7 each	56
Contingencies	10
Total ...	216

The Forest Officer is Mr. E. E. Wylly. Considering the work there is for a Forest Officer in Khoordah, its great increase if these proposals are adopted, and how desirable it is, there being no chance at present of a gazetted Forest Officer being available, to retain the services of Mr. Wylly, who is well acquainted with the country, the people and the language, I would certainly recommend his pay being raised And I think it should not be less than that of the lowest grade of Assistant Conservator of Forests, Rs. 250 per month, with the travelling allowance of an Assistant Conservator. I have no hesitation in saying that at present rates his pay is quite insufficient.

131. At present, in order to draw his travelling allowance of Rs. 50, he is bound to travel at least 200 miles. I would alter this, and instead of making his travelling depend upon distance, make it depend on his travelling, say, 15 days in each month at least. The minimum being dependent on distance, an officer is much tempted to get over the ground quickly and complete his monthly amount, especially if he finds the amount done getting short towards the end of the month. There are such great facilities for travelling in Khoordah that it is easy to make distance. If some further check is considered necessary, the Collector, who audits the bills, might have power given him to refuse to pass any items he considered unnecessary.

132. With regard to the subordinate establishment, it should be said that besides the 8 forest guards, 29 *road chatias* are also employed by the Forest Officer.

Paragraph 23J of the Government of Bengal resolution of the 23rd July 1880 (*Calcutta Gazette* Supplement, 28th July 1880) orders as follows:—

"Besides the village chowkidars, there are a few *road chatias* or chowkidars, holding in all about 156 acres of jaghir lands, whose duty was to patrol the Trunk Road. Mr. Taylor proposes to retain these men as forest watchers, reducing their jaghir to 5 acres each and settling any excess with them as ryots. The local officers and the Board approve of this proposal, and it is accepted by the Lieutenant-Governor."

133. And besides, there are the *paiks* referred to in paragraph 23 (*b*) of the same Resolution as follows:—

"The *paiks* were the rank and file of the old militia of the country, and they, too, held lands originally rent-free which were all resumed them with the other service jaghirs, but not as a rule re-granted. Now most of them will hold their *homesteads* free, on condition of escorting treasure and doing other local police duties. It is proposed to confirm to them this right on condition of their helping in forest conservancy and performing miscellaneous police duties as heretofore. These proposals are approved, but the Lieutenant-Governor desires that these small services should be regularly insisted on and not allowed to fall into neglect. Those paiks who prefer to do no Government work should, as suggested by Mr. Taylor, be allowed the option of settling for their homesteads like any other ryots of their own estate."

134. I believe the *paiks* have not yet been regularly employed in the forests, but the *road chatias* are very useful men, and are doing good work, many of them taking great interest in their charges.

135. At present the peons or "forest guards," as it will probably be preferable to call them, are stationed at the following places:—

		Zillah
1.	Chandaka	Dandimál.
2.	Andarroa	
3.	Maindasal	
4.	Khoordah	Khoordah.
5.	Jenkia	Ramesswar.
6.	Tangi	
7.	Sonakalla	Kohori.
8.	Banpur	Banpur.

But there are none in the zillahs of Panchgarh, Manikgora and Kuspála, where men are badly wanted, the Forest Officer informs me, to be stationed at Kuspála, Balgarh and Rautpara. This would make 11 or 12, with a peon for the Forest Officer, to carry his orders; and I would recommend the addition, as well, of the employment of a mohurrir on (say) Rs. 15 per month to assist the Forest Officer in making out his passes, and in giving instructions to his guards and sarbarakars. While in Mr. Wylly's company in the forests, I was able to recognize that some such help was wanted.

136. I think that when the closed blocks are formed, the guards, while exercising a general supervision over their beats, might have their chief work in watching the closed blocks. The road chatias should be generally under their orders, as also the *paiks* when necessary.

137. The present stations of road chatias are all alongside or close to the Trunk Road at the following places:—

Darootang	2
Chandaka	2
Kantabar	2
Manidasal	1
Chattabar	2
Paniora	1
Gramdhi	1
Gungpara	1
Dalligpoot	2
Muckonpersad	2
Turtua	2
Baropullee	2
Jenkia	2
Burpokria	2
Kohori	2
Koitpala	2
Khoordah	1
Total ...	29

In Panchgarh and Kuspála, in the east of Dandimál, and in Banpur there are none, and it may be found practicable to change them so as to scatter their residences more evenly through the forests. As already stated, I think they should be chiefly employed to watch the parts which are not closed, and they should carry some badge or distinctive mark, as at present there is no means of recognizing them. The forest guards have already distinctive badges.

138. Thus, if my proposals for change of establishment are agreed to, the monthly expenditure will be as follows:—

		Rs.
1	Forest Officer	250
1	Mohurrir	15
12	Guards, at Rs. 7 each	84
29	Chatias	...
	Paiks	...
	Total ...	349

or say Rs. 4,200 a year. Add to this Rs. 960 for travelling allowance, and Rs. 36 for small office expenses, the establishment should be fixed at Rs. 5,000 per year.

139. My attention has been drawn to the want of a house for the Forest Officer at Khoordah. At present he is residing in the Road Cess bungalow, which he has been permitted to occupy free of charge. But I understand that that bungalow is now required for the District Engineer, so that he will be without a house. The houses at Khoordah are mostly Government houses, built for the accommodation of the Sub-Divisional Officer and the Settlement Officer, and there is no dâk bungalow, so that the proposal to allow the Forest Officer a house is very reasonable, and I beg to recommend the grant of a sum of Rs. 1,500 for the purpose. The Forest Officer's office would necessarily be located in the same building.

140. I do not at present propose any alteration in the system of accounts, &c. It is less detailed and requires less office work than that of the Forest Department, but I would certainly recommend that the rules and forms of the Forest Code (Edition II of which is now published) be consulted when necessary. The forest system of permits, forms, &c., might be found useful.

141. And I would also recommend that the Forest Officer's annual reports be, at any rate in extracts, incorporated in the general annual forest report of the province, and that for this purpose copies be supplied me either direct or through the Commissioner or through Government by the 1st June in each year, commencing with the past year, the first in which the forests were worked as "Protected" under the Forest Act.

141. The following statement shows the revenue of the last 10 years:—

	Firewood.	Charcoal.	Bamboo.	Cane.	Stone.	Minor produce.	Grazing.	Confiscated.	Total.
	Rs.	Rs.	Rs	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1871-72	.....	.....	.....	.....	.....	.....	.....	.....	72
1872-73	.....	.....	.....	.....	.....	.....	.....	.....	436
1873-74	.....	.....	.....	.....	.....	.....	.....	.....	934
1874-75	.....	.....	.....	.....	.....	.....	.....	.....	2,194
1875-76	.....	.....	.....	.....	.....	.....	.....	.....	3,110
1876-77	.....	.....	.....	.....	.....	.....	.....	.....	5,576
1877-78	.....	.....	.....	.....	.....	.....	.....	.....	8,182
1878-79	3,192	592	589	282	1,737	.....	.....	292	6,684
1879-80	4,723	246	566	183	2,400	39	.....	.....	8,116
1880-81	5,370	300	933	220	1,636	87	.....	.....	8,546
Average of 10 years ...	.....	.....	.....	.....	.....	.....	.....	.....	4,383

The expenditure has been merely the amounts sanctioned for establishments.

142. It is obvious that such a revenue as this cannot support any heavy expenditure, and it is therefore necessary to urge that the greatest economy be exercised. But I think there is every probability of its increase,

and I would estimate, for the current year at any rate, as follows, always supposing that my recommendations are accepted :—

REVENUE.

Timber and Fuel.

	Rs.
House licenses 60,000, at 4 annas	15,000
(If eight annas is sanctioned, the amount will be doubled, but I put the lowest figure purposely.)	
Permits to outsiders	3,000
Thinnings in closed sál forests	6,000
(I have put a low figure for the first year, for the regular estimate *see* paragraph 117.)	
Thinnings in closed mixed forests	10,000
(Here too a low figure is taken, for the regular estimate *see* paragraph 126.)	
Charcoal	300
Brushwood, stakes, &c.	700
Bamboos	2,500
Cane	300
Stone, lime, &c.	1,700
Minor produce, especially gundi	500
Total ...	40,000

EXPENDITURE.

Establishments	4,200
Travelling allowance	1,000
House	1,500
Nursery works and planting	1,000
Cutting timber departmentally (if arranged anywhere, as perhaps in the Banpur mâls)	1,000
Roads	1,000
Contingencies, tools, &c.	300
Total ...	10,000
Surplus Revenue	30,000

143. If the full proposals of this report are worked up to, the revenue should reach Rs. 85,000, and expenditure, perhaps, Rs. 15,000, leaving a surplus of Rs. 70,000; but it is unlikely that this can yet be done for a year or two, though eventually it may reach even a higher figure.

144. It is best again to point out that my present proposals should only be considered as "preliminary," to be revised on the next opportunity of the Conservator of Forests' visit. With a few years' experience, a definite "plan of operations" can be formed, and, if necessary, an alteration in the system arranged by which the best portion of forests can be constituted "reserves."

145. In conclusion, I would beg to express my acknowledgments to the Commissioner, the Collector, the Sub-Divisional and Forest Officers, and especially to Mr. Taylor, the Chief Settlement Officer, for the great assistance they have given me in procuring the information I require, and in studying the forests and the conditions of settlement work in Khoordah. Without that assistance, so readily given, I could never have in the short time available obtained the information I required in a district so new to me as that of Pooree.

DARJEELING,
The 27th April 1881.

J. S. GAMBLE,
Offg. Conservator of Forests, Bengal.

APPENDIX A.

Extracts from the Administration Report for Khoordah Sub-Division for the year 1872-73, *by* W. C. TAYLOR, ESQ., *Deputy Collector.*

ON the 24th May I went over the Jamjhari and Hariramara bunds made last year, and found both quite dry. Sál jungles were growing well, but I found marks of the saplings being cut here and there; charcoal was being made by the Savars of Hariramara in large quantities, though forbidden. Owing to the wasteful way in which the people of these parts make charcoal, ten or twelve cart-loads of good timber is required to make one cart-load of charcoal. The Savars pretend to make the charcoal in the neighbouring jungles of Domparra, but they really, I believe, take the wood from the Khoordah jungles, getting passes for a few pice from a man who has taken a bunkur lease from the Rajah of Domparra.

I went far into the jungle to visit a celebrated spring called the "Kalajhar." This spring was quite dry owing to the destruction of the jungles round it, and on the neighbouring hills. In former years this spring is said to have yieled a copious flow of good water all the year round. There is no cultivation in the immediate neighbourhood, and I ordered the surrounding jungles to be strictly preserved so as to increase the dry-weather supply of water. The spring commands a large tract of country and could be made most useful for irrigation. The ryots informed me that it is only for the last two years, since the jungles have been cut, that the spring has dried up during the hot weather. Cattle grazing in the neighbourhood have now to be taken a great distance for water. Some potters of Binjhagiri had complained to the Commissioner against the sarbarakars for preventing their taking firewood from the jungles to burn their pots. I called for these men, who admitted that they had only complained for fear some one should hereafter prevent their taking wood. I knew that the charge was false, as there is no restriction on the ryots taking what firewood is necessary, but in order to make certain, I visited the houses of these potters on the 25th, and found large stacks of firewood for burning pots in every *barie*. In fact, the jungles are still cut and destroyed right and left, though not quite in so reckless a manner as when I first began to look after them.

On the 17th December I took a long round by Mardabar and Katpalla to visit the sál preserves on the boundary between Ranapur, Khoordah, and Nyagarh, and found them most flourishing, made arrangements for preserving some of the smaller hills near Balagarh for firewood and bamboos, and pointed out where ryots were to cut for the present.

The amount of cultivation in Panchgarh was also a surprise to me. I found every beegha of culturable land cultivated up to the very foot of the hills. The country is covered with granite and gneiss rocks, mostly quite bare of jungle, and the people are already in distress for firewood, both in Panchgarh and Kuspála; the preservation of the jungles has not been commenced a day too soon. The soil is all the old undulating alluvium with ghooting lime in large quantities. Of grazing ground for cattle there is none left; and I left strict orders to stop part of the toila or dry cultivation at the base of the hills, so as to allow grazing room for cattle. The ryots all complained bitterly of want of grazing ground and of the destruction of the jungles, although it is they who have recklessly cut down or rooted up everything. There is a little jungle on the boundary between Patbondh and Khandpara, with a good many sál saplings, and this is the land that the ryots of Khoordah and Khandpara were fighting about. The Commissioner has awarded the tract to Khoordah, and with a little judicious management, and preserving tracts of hill and jungle here and there, the supply of firewood and bamboos will in a few years be sufficient for the wants of the people, and the sál preserves will be of great value; but unless the country is looked after, very great distress will be caused by the reckless destruction of jungle made by ryots who are not restrained. There is still plenty of large jungle on the hills at the trijunction of Ranapur, Nyagarh and Khoordah, but these jungles being at some distance from the principal villages, the ryots are too lazy to go far for their wood, and continue to root up every stick they can find close to their houses. I have made two sál preserves in Panchgarh and one in Manibandh, and one in Kuspála, and the result even of two or three years' preservation is wonderful. The trees, though apparently saplings, are sprouts from the roots of old forest trees and grow much faster than seedlings would grow.

On the 13th January I went to Poradibi and Pangarsing to make local enquiry into two or three cases, and took the opportunity of inspecting the sál preserves at Pangarsing, which I found to be growing well and to be more extensive than I had expected.

I have not had leisure during the past year to make much progress under this head, and no accurate demarcation has been made of preserves; the consequence is that wasteful and injudicious cutting still continues to a great extent. Ryots have been throughout the year allowed whatever firewood, bamboos and timber they required, free, and in no single case has a free pass been refused to a ryot of the estate. I have, however, forbidden the cutting of timber for posts and the like without a pass, so that, although the passes are given free of charge, I have been able to regulate the places from which the wood required is to be taken, and to refuse passes for timber and firewood in places where the state of the jungle renders it advisable not to cut for a few years. My remarks in last year's report are applicable also this year, and there is no need to recapitulate.

I find that ryots who have been accustomed to cut jungle close to their own doors have the greatest objection to going a few miles for their firewood, and this notwithstanding that

they admit that if jungle cutting is not checked in the jungles, there will be none left to cut in a year or two. At present in zillahs Panchgarh and Kuspála there is a great scarcity of firewood and the jungles have been almost entirely rooted up. In zillah Rameswar also the jungles require rest for three or four years, whilst in Banpur, Kohori and Dandimál there is an ample supply of bamboos and firewood and posts for building huts, which all ryots are allowed to take free of charge for their own use; but the ryots of Panchgarh, Kuspála and Rameswar, though constantly complaining of the destruction of jungle and scarcity of timber and firewood, object to go to the large jungles for what they require. I am endeavouring to make the jungle conservancy as easy as possible for the people, but they are like children who require to be forced to take physic for their own good. I am aware that you are inclined to think that the physic should not be administered by force, and that the patient should be allowed to die if it so pleases him, but I cannot agree with you in this; for not only will the ryots themselves be put to great straits for timber, bamboos and firewood, if left to themselves, but the springs will dry up, the rainfall will decrease, and the summer temperature will be raised by the clearing off of all the jungles. The breeds of cattle already deteriorated by want of proper food will still further degenerate as the forests and grazing grounds are cleared of jungle and deprived of the moisture necessary for the growth of grass. The dung of cattle, now used for manure, will be used for fuel, and the productive powers of the soil will decrease in exact proportion to the decrease of moisture and want of manures. In short, without jungle Khoordah would be ruined. Even in a delta country where the soil retains the moisture of the rains throughout the dry months of the year, the want of jungle is a great evil; but in a dry and rocky country like Khoordah, where every drop of rainfall drains off in a few hours, the total destruction of its forests would subject the people to the greatest distress.

APPENDIX B.

NOTE ON THE KHOORDAH FORESTS.

A.—*Requirements.*

1. To keep up and improve the supply of firewood, bamboos, and charcoal for use on the estate.
2. To keep up and improve the supply of posts and other timber for use on the estate.
3. To provide a supply of valuable and ordinary timber, firewood, bamboos and other forest produce for sale outside of the estate.

B —*Things to be done in order to effect the objects stated above in A.*

1. To close for ten years against felling and grazing about one-fourth of the protected area including hills, sá-coppice, selected and promising tracts of miscellaneous timber and jungle, and as many as possible of the worst tanghies and large tracts of small scrub and waste.
2. To preserve the whole protected area from jungle fires.
3. To reserve a few of the best sorts of timber in all forests and jungles, whether closed or open.
4. To prevent the premature cutting, or cutting out of season, of bamboos and canes.
5. To prohibit toila cultivation except under the Settlement Rules given at page 29 of the Khoordah Rate Report, and sanctioned in section 49 of the Government Resolution of the 23rd July 1880.
6. To prohibit the extension of permanent cultivation, except under the Settlement Rules, as given at page 29 of the said Rate Report, or as may hereafter be sanctioned by the Government.
7. To open out roads in the Banpur mâls and other inaccessible places, and to close other jungle roads, when necessary, in order to protect the forests.
8. To regulate the transit through the estate of forest produce from Khalikote, Athgarh, Gumsur, Nyagarh, Ranapur, Khanpara, Banki, Domparra, Mootree, Chandi, Saranggarh, Patia, and Garkan.

C.—*Principles to be followed in the collection of Forest Revenue.*

1. All tenants of the estate to be allowed to cut and take firewood and jhatties for use in their villages, and jhatties and stakes for fencing crops, and erecting watch-towers, and to graze their cattle, on taking out an annual license for each village, which license will be granted by the Forest Officer on prepayment made by the villagers of a sum of money representing not more than eight annas for each separate house or family in the village.
2. Tenants on the house-rate system will only be allowed to graze their cattle or goats in, or to fell and remove their firewood, &c., from, such forests or jungles as may be specified in their licenses. Thorns, jhatties, and stakes for fencing crops and making watch-towers may also be allowed to them by the Forest Officer from any open jungle near their cultivation instead of from the jungle specified in the license.
3. Building stone and limestone for use on the estate shall be allowed to all the tenants free of payment on their applying for permission to quarry and remove.

4. All other forest produce including wood for burning lime may be given to the tenants and residents of the estate at such rates as may be for the time being in force.

5. The Public Works and Road Cess Departments shall be allowed to quarry and take stone for building and metalling as now, without previous license. The Public Works Department or Road Cess officer shall keep an account of all stone so taken and remit the royalty to the Tehsildar of the estate by the 15th of March in each year. Provided that no old walls, buildings, or foundations shall be touched by the Public Works Department or Road Cess without the previous sanction in writing of the Collector of the district.

6. Licenses for the felling, quarrying, gathering, and removal of all forest produce for export from the estate shall be given to applicants by the Forest Officer at the rates of payment for the time being in force.

D.—*Disposal of Forest Revenue.*

1. After paying all sanctioned establishments, the whole or a part of the surplus revenue shall, on the recommendation of the Collector, be credited to the District Road Cess Committee to be spent by them exclusively in making such forest roads as may be required by the Forest Officer and approved by the Collector.

2. The balance of Khoordah forest revenue, if any, to be carried to the credit of Miscellaneous Revenue of the Khoordah Estate.

KHOORDAH,
The 22nd February 1881.

W. C. TAYLOR,
Settlement Officer.

C. E. G.—Reg. No. 1672J—145—13-6-81.